

REVIEWS OF BOOKS

GENETICS

Harris, H. *Human Biochemical Genetics*. Cambridge, 1959. University Press. Pp. viii + 310. Price 37s. 6d.

Wolstenholme, G. E. W. and O'Connor, Cecilia M. (Editors). *Biochemistry of Human Genetics*. A Ciba Foundation Symposium. London, 1959. Churchill. Pp. xii + 347. Price 50s.

IN THE LAST FEW YEARS, we have witnessed the surprising transformation by which human genetics, for so long the Cinderella of the subject, has suddenly sprung to the forefront of general interest. Technical progress in two fields has been mainly responsible. In cytology, the use of hypotonic treatment of cells prior to fixation has immensely simplified the analysis of mammalian chromosomes or, perhaps more accurately, has made them accessible to critical analysis: not even the human chromosome number stood up to re-investigation by the new method! In the field of biochemistry, paper chromatography and the various varieties of electrophoresis have revolutionized the analysis of proteins and other macromolecules; and whereas the biochemical mutants of *Neurospora* and other microorganisms were the ideal material for the study of the biosynthesis of small molecules like amino acids, mammals, and man in particular, score heavily when it comes to proteins. As the result of this sudden burst of activity, progress has been rapid, but the dissemination of the results beyond the circle of active research workers has badly lagged behind. Both of the books under review will thus be eagerly read by a very wide circle of biologists far beyond the confines of human genetics. Though the two books overlap to some extent, they are largely complementary to each other. Dr. Harris's *Human Biochemical Genetics* has the advantage of a book organized and integrated by a single author, an author, incidentally, who has made many important contributions to the field. The book is excellent in its clear and lucid presentation of the facts and the cautious and critical attitude to controversial issues. The other volume, entitled *Biochemistry of Human Genetics* is the outcome

of a symposium held under the joint auspices of the Ciba Foundation and the International Union of Biological Sciences in Naples in May, 1959. It was attended by some twenty-nine scientists who included many of the foremost authorities in the field. Their papers naturally cover an even wider field than Harris's book, and they include many quite recent advances not yet published elsewhere. A special feature of the symposium are the many stimulating discussions which have been printed *in extenso* and which, in the interplay of ideas, cannot fail to be of the greatest value to the reader. Both books can be whole-heartedly recommended. It is hard to make a choice: they should both be read.

H. GRÜNEBERG

Falconer, D. S. *Introduction to Quantitative Genetics*. Edinburgh and London, 1960. Oliver and Boyd. Pp. x + 365. Price 35s.

GENETICS BECAME a science when systematic study was made of clearly definable effects due to single substitutions. The result was "Mendelism"—a subject which has been taught in courses on elementary biology for several decades. It soon became obvious that quantitative differences between individuals, whether measures or the result of counting (for instance, number of young), demanded a different methodology. The resulting discipline of quantitative genetics could not have been developed without Mendelism; but it now has not only its own terminology and techniques of experiment but also its own theoretical system. The scope of this system ranges from the elucidation of evolutionary mechanisms to helping stock-breeders to raise the milk supply of dairy herds.

Dr. Falconer has written the first textbook on this subject. He begins, in beautiful and (to non-mathematical biologists) encouraging simplicity, with the elementary principles of population genetics. Although his main concern is with quantitative characters, one of his first examples is albinism in man—a mildly disadvantageous, usually recessive, condition, probably due to a single autosomal gene. About one person in 20,000 is an albino. How many are heterozygotes,